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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,677	12/20/2001	Roger G. Etter	ENV1298-002J	2635

8698 7590 05/04/2004

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EXAMINER

ARNOLD JR, JAMES

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/027,677

Applicant(s)

ETTER, ROGER G.

Examiner

James Arnold, Jr.

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 21-23 and 48-54 is/are pending in the application.
- 4a) Of the above claim(s) 1-5, 21-23 and 48-54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 21-23 and 48-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-5, 21-23, and 48-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gamson (USPN 3,684,697) in view of Mallari (USPN 4,797,197).

The Gamson reference discloses a process for producing a sponge coke product comprising providing a coke precursor material of carbonaceous origin and subjecting said coke precursor to a thermal cracking process. The reference discloses utilizing coking feedstocks with low asphaltene contents. The reference discloses controlling of coking variables including pressure. The reference discloses delayed coking as the thermal cracking process. See Column 1, lines 20-35; Column 2, lines 10-35 and 62-70; and Column 3, lines 23-33.

The reference does not disclose a sponge coke in an amount in the range of about 40% to 100% by weight. The reference does not disclose a coke product having VCMs present in an

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amount in the range of from about 13% to about 50% by weight. The reference does not disclose a process wherein said coking vessel thermal quench, said coking vessel chemical reaction quench, or combinations thereof are added into a coking vessel via injection systems selected from the group consisting of an existing anti-foam injection system, modified drill steam, an injection lance at the top of the coking vessel, and combinations thereof. The reference does not disclose a coking process comprising providing a coke mass and a vapor phase above said coke mass; and injecting a quench medium into said vapor phase during a coking cycle; whereby thermal cracking said vapor phase is quenched during said coking cycle. The reference does not disclose a coking process wherein said thermal cracking is inhibited by a quench selected from the group consisting of a thermal quench, chemical reaction quench, and combinations thereof. The reference does not disclose a process wherein the quench medium is selected from a group consisting of hydrogen, water, gas oil, and combinations thereof. The reference does not disclose a process wherein said quench medium is injected via a modified drill stem positioned in said coking vessel during said coking cycle and maintained at a level about 2 to about 20 feet above said coke mass. The reference does not disclose a process wherein said coke precursor material characteristics are modified by increasing aromatic content or decreasing content of asphaltenes and/or resins whereby said ratio of asphaltic coke to thermal coke in the coking reactions is reduced; a process wherein said heater outlet temperature is decreased sufficiently below conventional heater outlet temperature whereby said ratio of asphaltic coke to thermal coke in the coking reactions is reduced; a process wherein said coking vessel temperature is decreased sufficiently below conventional coking vessel temperature whereby said ratio of asphaltic coke to thermal coke in the coking reactions is reduced; a process wherein said coking

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vessel pressure is increased sufficiently above conventional coking vessel pressure whereby said ratio of asphaltic coke to thermal coke in the coking reactions is reduced; a process wherein said coking vessel thermal quench decreases said coking vessel temperature below conventional coking vessel temperature whereby said ratio of asphaltic coke to thermal coke in the coking reactions is reduced.; or a process wherein said coking vessel chemical reaction quench sufficiently decreases cracking of aromatic compounds whereby said ratio of asphaltic coke to thermal coke in the coking reactions is reduced.

The Mallari reference discloses that VCM amounts may be controlled and it teaches a minimum of 4% to 6% VCMs. The reference discloses a process comprising providing a coking vessel containing a coke mass and a vapor phase above said coke mass; and injecting a quench medium into said vapor phase during a coking cycle; whereby thermal cracking in said vapor phase is quenched during said coking cycle. The reference discloses a coking process wherein said thermal cracking is inhibited by a quench selected from the group consisting of a thermal quench, chemical reaction quench, and combinations thereof. The reference discloses a process wherein the quench medium is selected from a group consisting of hydrogen, water, gas oil, and combinations thereof. See Column 7, lines 55-68; Column 9, lines 5-35; Abstract; column 3, lines 63-68; Column 4, lines 1-22; Column 6, lines 18-24; Column 7, lines 25-30; and Column 18, lines 35-45.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of Gamson to utilize Mallari's VCM amounts because Gamson discloses control of coking variables and control of VCMs may lead to greater hydrocarbon yield. It would have been obvious to one having ordinary skill in the art at the time

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the invention was made to modify the process of Gamson to utilize Mallari's process comprising providing a coking vessel containing a coke mass and a vapor phase above said coke mass; and injecting a quench medium into said vapor phase during a coking cycle; whereby thermal cracking in said vapor phase is quenched during said coking cycle; Mallari's process wherein said thermal cracking is inhibited by a quench selected from the group consisting of a thermal quench, chemical reaction quench, and combinations thereof; and Mallari's process wherein the quench medium is selected from a group consisting of hydrogen, water, gas oil, and combinations thereof because these processes allow for an increase in hydrocarbon yield and a decrease in the yield of low value coke. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a sponge coke in an amount in the range of about 40% to 100% by weight because sponge coke has a greater economic value than shot coke and therefore it would be appropriate to create high yields of sponge coke. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a process incorporating injection systems selected from the group consisting of an existing anti-foam injection system, modified drill steam, an injection lance at the top of the coking vessel, and combinations thereof or to utilize a process incorporating a modified drill stem positioned in said coking vessel during said coking cycle and maintained at a level about 2 to about 20 feet above said coke mass because Mallari discloses quenching and it would be appropriate to use any means effective for carrying out the quenching. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a process wherein said coke precursor material characteristics are modified by increasing aromatic content or decreasing content of asphaltenes and/or resins whereby said ratio of asphaltic coke to thermal coke in the

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coking reactions is reduced; a process wherein said heater outlet temperature is decreased sufficiently below conventional heater outlet temperature whereby said ratio of asphaltic coke to thermal coke in the coking reactions is reduced; a process wherein said coking vessel temperature is decreased sufficiently below conventional coking vessel temperature whereby said ratio of asphaltic coke to thermal coke in the coking reactions is reduced; a process wherein said coking vessel pressure is increased sufficiently above conventional coking vessel pressure whereby said ratio of asphaltic coke to thermal coke in the coking reactions is reduced; a process wherein said coking vessel thermal quench decreases said coking vessel temperature below conventional coking vessel temperature whereby said ratio of asphaltic coke to thermal coke in the coking reactions is reduced.; or a process wherein said coking vessel chemical reaction quench sufficiently decreases cracking of aromatic compounds whereby said ratio of asphaltic coke to thermal coke in the coking reactions is reduced because Gamson discloses controlling of coking variable and because Gamson discloses the use of low asphaltene coking feedstocks.

### ***Response to Arguments***

Applicant's arguments have been fully considered and are deemed persuasive; however, new grounds of rejection are set forth in this office action.

### ***Conclusion***

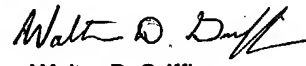
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Arnold, Jr. whose telephone number is 571-272-1443. The examiner can normally be reached on Monday-Thursday 8:30 AM-6:00 PM; Fridays from 8:30 AM-5:00 PM with alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ja  
April 29, 2004

  
**Walter D. Griffin**  
**Primary Examiner**